

Application Note

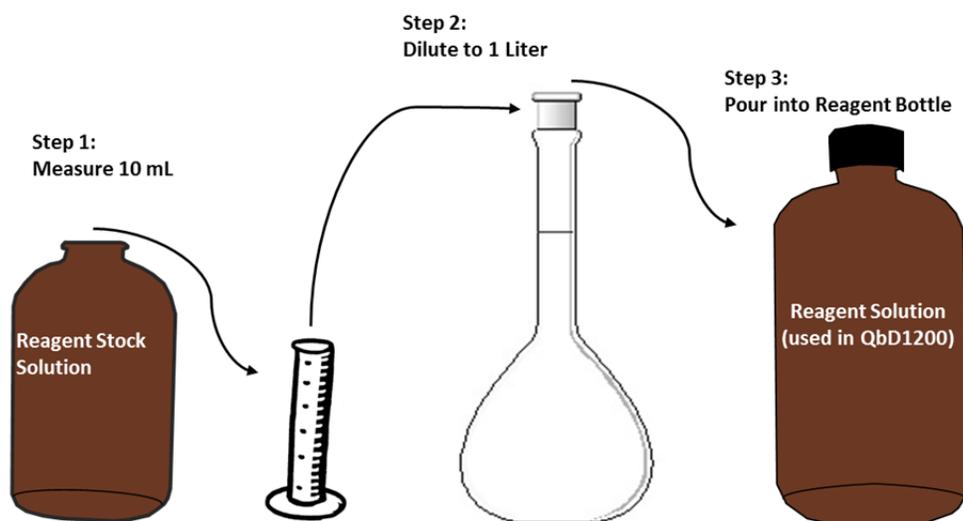
PREPARING REAGENT SOLUTION FOR THE QbD1200

The QbD1200 uses a mixture of phosphoric acid (to aid in removal of CO₂ from solution) and ammonium persulfate (to aid in oxidizing organic compounds). This mixture is added to each sample and standard prior to oxidation, and is used to dilute samples (if needed) and rinse sample lines. Under normal use conditions, a user will prepare a new reagent solution with each tray of samples to measure.

Preparing the reagent solution is very simple. The reagent stock solution is a concentrated mixture of acid and persulfate; a working solution is simply a 1:100 dilution of the stock solution. The stock solution can either be purchased from Hach (PN 9459400), or users can prepare their own (instructions follow).

It is important to note: the final concentration of both acid and persulfate in the 1:100 diluted reagent solution far exceeds what is required to oxidize organics within the concentration range specified for the instrument and remove CO₂ from the sample solution when the carrier gas is flowing. This means that a high degree of precision is not required to prepare the 1:100 dilution.

To prepare the reagent solution, follow these three simple steps:



Notes:

- As always, when preparing solutions used for very sensitive measurements (ppb levels), use clean glassware and ultrapure water (< 50 ppb TOC).
- A fresh reagent solution is usually prepared each day.
- Make sure there is enough reagent solution to complete a tray of samples when autosampler is running and instrument is left unattended.
- In the event high Total Inorganic Carbon (greater than 20 ppm) is expected in the sample water, an additional step of adding 10 mL of off the shelf phosphoric acid (85% H₃PO₄) in addition to the 10 mL of One Reagent stock solution prior to dilution to 1 L will be required.

Preparing Reagent Stock Solution Concentrate

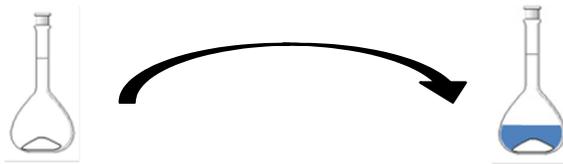
If you choose not to purchase stock solution, you can easily prepare your own. Reagent stock solution concentrate is hazardous. Use caution and proper PPE. Always wear safety glasses and gloves when handling chemicals.



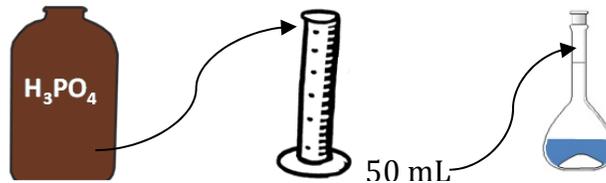
Step 1: Weigh 250 g ($\pm 1\%$) of reagent grade ammonium persulfate, transfer to 1 L volumetric flask.



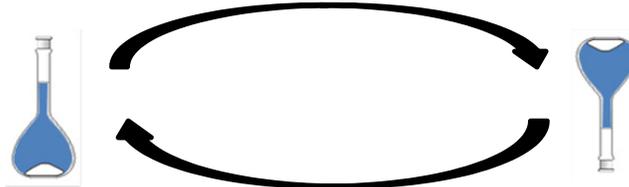
Step 2: Fill flask approximately half full with ultrapure water.



Step 3: Measure 50 mL reagent grade phosphoric acid in a graduated cylinder, transfer to same flask above.



Step 4: Fill flask to mark with ultrapure water, add stopper to flask, invert flask repeatedly until contents are completely dissolved.



Notes:

- Prepared Reagent Stock Solution concentrate can be kept for 90 days when refrigerated and protected from light in a clean amber bottle.

FOR TECHNICAL ASSISTANCE, PRICE INFORMATION AND ORDERING:

Tel: 800-227-4224 | E-Mail: techhelp@hach.com

To locate the HACH office or distributor serving you, visit: www.hach.com

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